

Part of the water stored in Falls Lake is used to supplement downstream river flows. Water is released from the dam to maintain flows above specified target flows in the Neuse River at the U.S. Geological Survey stream gage in Clayton, N.C. Figure 5-4 below shows stream flows below 400 cubic feet per second at the Clayton stream gage. This indicates how well the model characterizes the requirement to keep flows above the specified targets. The model does not include a drought protocol. Therefore, the program does not possess the ability to adjust release requirements in response to drought conditions. Also, the model has the ability to calculate how much water is needed to meet the downstream target and release that amount of water from the reservoir. The operators have to estimate how much is needed in addition to the inflows from the basin between the dam and the gage and consider the time it takes for the water to travel down to the gage.

As noted above, the operators are not constrained by the conditions set in the model and can adjust flow augmentation releases to respond to drought conditions. The results of these adjustments show up in this graph where actual flows at Clayton were consistently below the target levels beginning in mid-year. This indicates a reduction in downstream releases to preserve the supply of stored water. Referring back to Figure 5-2 this reduction in downstream releases shows up in the water level plot where the actual water levels diverge from that predicted by the model, as a result of releasing water necessary to maintain the target flows as shown in Figure 5-4.

Figure 5-4: Comparison of Simulated and Historic Clayton Gage flow and Minimum Flow

